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Claims

- Sub B1
1. Method for production of a CO₂-rich gas stream and a H₂-rich gas stream, characterized in that the method comprises the following steps:
- 5 a) natural gas and water are fed to a reforming reaktor and converted to synthesis gas under supply of a O₂-containing gas;
- b) the gas stream from a) is shifted, whereby the content of CO is reduced and the amounts of CO₂ and H₂ are increased by reaction of H₂O;
- 10 c) the gas stream from b) is separated in a separation unit into a CO₂-rich and a H₂-rich gas stream, respectively.
2. Method according to claim 1, characterized in that the shift process in b) is carried out in one step.
- Sub 15
3. Method according to claims 1-2, characterized in that the ratio H₂O:CO in the shift process is from 1 to 9.
4. Method according to claims 1-3, characterized in that the ratio H₂O:CO in the shift process preferably is from
- 20 1.5 to 4.
5. Method according to claims 1-4, characterized in that the pressure in the CO₂-rich gas stream after the separation unit is from 1 to 100 bar.
- 25 6. Method according to claims 1-5, characterized in that the pressure in the CO₂-rich gas stream after the separation unit is from 5 to 50 bar.
- 30 7. Method according to claims 1-6, characterized in that the carbon part in the H₂-rich gas stream is from 1 to 20 % by volume.

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8. Method according to claims 1-7,
characterized in that the carbon part in the H₂-rich gas stream is from 5 to 15 %
by volume.

9. Method according to claims 1-8,
characterized in that the natural gas in step a) is supplied with an oxygen rich
gas.

10. Method according to claims 1-8,
characterized in that the natural gas in step a) is supplied with air/oxygen en-
riched air.

11. Method according to claims 1-8,
characterized in that the reformer reactor preferably is a partial oxidation reac-
tor.

12. Method according to claims 1-11,
characterized in that the reformer reactor particularly is an autothermal refor-
mer.

13. Method according to claim 12,
characterized in that the gas stream from a combustion chamber in an
autothermal reformer is contacted with a catalyst bed.

14. Method according to claim 11,
characterized in that the reforming is carried out without a catalyst.

15. Method according to claims 1-14,
characterized in that the gas stream out of the reformer has a temperature wit-
hin the interval from 800 to 1200°C.

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16. Method according to claim 10,
characterized in that at least a part of N_2 follows the CO_2 -rich gas stream.

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17. Use of a CO_2 -rich gas stream produced according to claim 1 for injection into marine formations.

18. Use of a H_2 -rich gas stream produced according to claim 1 for hydrogenation.

19. Use of a H_2 -rich gas stream produced according to claim 1 as a source of energy /
fuel in fuel cells.

20. Use of a H_2 -rich gas stream produced according to claim 1 for the production of electricity.

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